

REMARKS

Claims 1-11 have been rejected under 35 U.S.C. §103(a) as unpatentable over Rai (U.S. Patent No. 6,222,463). However, for the reasons set forth hereinafter, Applicant respectfully submits that all claims of record in this application distinguish over the Rai reference, whether considered by itself or in combination with other references.

The present invention is directed to a method for automatically and wirelessly updating control information used by an on board vehicle control unit, such as an engine controller, a transmission controller, etc. In particular, the method and apparatus according to the invention permits vehicle specific programs and various forms of data necessary for vehicle control to be rewritten automatically, without interfering with the operation of the vehicle.

According to the invention, when an updating event occurs, an information management base station transmits an inquiry to all vehicles under its management, regarding whether or not each of such vehicles has on board a vehicle mounted control unit that needs to be updated. In response to receipt of this inquiry, each vehicle determines whether or not the information update is necessary for any control units on board the vehicle, and responds by sending a wireless transmission back to the information management base station. Based on such responses, the latter then selects the vehicles that need to be updated, and transmits update information only to those vehicles indicating that they are

in need of being updated. (See, for example, specification page 3, lines 2 through 17 and page 9, lines 2 through 23.) In addition, according to a further feature of the invention, in order to avoid disturbing the driving the vehicle 200, or burdening its on board electronics systems with communication and computation which might interfere with its ongoing operation, such an update is carried out only for those vehicles that are in an "update-allowed state". In particular, the update-allowed state includes a state in which the vehicles are parked and are not in operation. (See page 9, line 24 through page 10, line 2 of the specification.)

The foregoing features of the invention are set forth in each of the independent claims as amended herein. Claim 1, as amended, for example, recites that when an updating event occurs, the information management base station transmits a query "to all vehicles under its management regarding whether or not a vehicle mounted control unit that needs to be updated by the information management base station is present thereon". Based on replies from the individual vehicles, the information management base station selects and updates only those vehicles which are in need of updating. Independent Claim 2, 4, 10 and 11 are similarly limited. That is, in each of the independent claims, the information management base station determines, based on information received from the respective vehicles, which vehicles are to be updated, and updates only those vehicles. Moreover, dependent Claims 7, 8 and 12-15, further recite the feature that updating is performed only when the vehicle is parked and not in operation.

These features of the invention are not taught or suggested by the Rai patent, which is directed to a bidirectional vehicle communication network for updating vehicle registration, insurance, inspection and/or maintenance records. In the vehicle communication network according to Rai, each vehicle is equipped with an electronic tag containing records associated with the vehicle. A portable interrogator unit is then used to interrogate each individual vehicle (presumably when it passes by an interrogation point) by sending a radio frequency signal which causes the vehicle tag to transmit information contained therein. Updated records may then be transmitted back to the electronic tag for storage, by the same communication link. (See Abstract; specification at Column 1, line 36 through Column 2, line 20.)

As can be seen from above brief summary, the Rai system is similar to the present invention to the extent that it includes bidirectional vehicle communication, via which records stored in an electronic tag on board the vehicle (a form of transponder) may be updated. It differs from the present invention, however, in that it does not teach or suggest any of the following features which are recited in the independent claims of the present application:

1. It does not provide for the transmission by an information management base station of an inquiry to all vehicles under its management, regarding whether or not they have on board a vehicle mounted control unit that needs to be updated;

2. It contains no provision for the vehicle to determine whether or not it has such a control unit that needs to be updated, or for its sending a response to the management information base station indicating the result of such determination;

3. It contains no structure or methodology by which the base station selects individual vehicles that are to be updated based on the replies from such vehicles;

4. It contains no provision for the information management base station updating only those vehicles which have been selected as requiring updating; and

5. It contains no teaching or disclosure which suggests that updating can occur only when the vehicle is in an update-allowed state, such that it is parked and not in operation.

Rather, in Rai, updating (namely, downloading of update information), may be carried out at any time, regardless of the situation, even when the vehicle is being driven. When such updating is carried out during operation of the vehicle, the burden of calculation resulting from the download may adversely affect the safety and reliability of vehicle control. Moreover, if communication conditions deteriorate, causing noise, during operation of the vehicle (such as, for example, when it passes through a tunnel), downloading may not be completed, so that the update information must be retransmitted.

Accordingly, Applicant respectfully submits that all claims of record in this application, as amended herein, and including new Claims 12 through 18, distinguish over the cited Rai reference, and are allowable.

In light of the foregoing remarks, this application should be in condition for allowance, and early passage of this case to issue is respectfully requested. If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323, Docket No. 011050.57881US.

Respectfully submitted,



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